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STAFF REVIEW  
OF  
GANG MILLS, NEW YORK  
LOCAL FLOOD PROTECTION PROJECT

SUSQUEHANNA RIVER BASIN COMMISSION

JANUARY 13, 1977

The Susquehanna River Basin Commission was created as an independent agency by a Federal-Interstate Compact\* among the States of Maryland, New York, Commonwealth of Pennsylvania and the Federal Government. In creating the Commission, the Congress and State Legislatures formally recognized the water resources of the Susquehanna River basin as a regional asset vested with local, State and National interests for which all the parties share responsibility. As the single Federal-Interstate water resources agency with basinwide authority, the Commission's goal is to effect coordinated planning, conservation, management, utilization, development and control of basin water resources among the government and private sectors.

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\* Statutory Citations: Federal - Pub.L. 91-575, 84 Stat. 1509 (December, 1970); Maryland - Natural Resources §8-301 (Michie 1974); New York - ECL §21-1301 (McKinney 1973); and Pennsylvania - 32 P.S. 820.1 (Supp. 1976).

STAFF REVIEW  
OF  
GANG MILLS, NEW YORK  
LOCAL FLOOD PROTECTION PROJECT

SUSQUEHANNA RIVER BASIN COMMISSION  
5012 LENKER STREET  
MECHANICSBURG, PENNSYLVANIA 17055






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## GANG MILLS LOCAL FLOOD PROTECTION PROJECT

### Project Location and Flood History

The flood protection project is located in the portion of the Town of Erwin known as Gang Mills, a community located at the confluence of the Cohocton and Tioga Rivers, Steuben County, New York (Figure 1). This area has been subjected to at least three major floods from the Tioga and/or Cohocton Rivers as well as from Gang Mills Creek, since 1918. The Agnes Flood of 1972 exceeded the previous flood of record which had occurred in 1946. The Eloise Flood in 1975 produced slightly lower flood stages than the 1946 flood. Within the immediate project area of Gang Mills, the 1972 flood produced inundation depths in the range of 10 to 12 feet, resulting in the outright destruction of 82 homes and damaging 76 others. There are no complete flood damage estimates readily available pertinent to the community of Gang Mills for any of the major flood experiences.

### Existing Flood Protection

The State of New York has previously constructed separate levee projects along the Tioga and Cohocton Rivers providing partial protection for the community of Gang Mills. The existing levee system along the Cohocton River is effective against the 100-year flood but the levee along the Tioga River was found to be ineffective for a flood of the same frequency from the upstream area.

## General Project Details\*

The State of New York's Department of Environmental Conservation has undertaken sponsorship of the new flood protection project for Gang Mills which will be constructed at a cost of over \$2,800,000. Construction of project features are scheduled along the Tioga River, Beartown Creek and Gang Mills Creek (Figure 2).

### A. Drainage Areas of the Rivers and Major Creeks in the Project Area

Tioga River - 1,380 square miles

Cohocton River - 617 square miles

Gang Mills Creek - 7.9 square miles

Beartown Creek (a tributary of Gang Mills Creek) - 4.5 square miles

### B. Project Design Discharges

Tioga River - 75,000 cfs (with Tioga-Hammond Reservoirs)

Cohocton River - 50,000 cfs (Coincident Flow with Tioga River)

Beartown Creek Diversion - 1,800 cfs

### C. River Levee Features

1. 11,900 feet of new Tioga River levee will be constructed to a height of 12' - 15'.

\*Appendix A lists reference documents concerning the project.

2. 4,400 feet of existing Tioga River levee will be rehabilitated by removing trees and brush, reshaping, and providing drainage fill.
3. Levees will be constructed of homogeneous rolled earth fill having a top width of 10 feet, sideslopes of 3:1 and three feet of freeboard. Medium stone fill bank and/or channel protection will be provided where flow velocity exceeds six feet per second.

D. Interior Drainage

1. The Beartown Creek diversion will include 8,200 feet of new creek channel, 7,200 feet of levee with twin structural steel plate pipe arch culverts for South Hamilton Street, Consolidated Rail Corp. tracks, and Route 15. The levee will vary in height from 5 to 15 feet, have a 10-foot top width and 3:1 sideslopes, and be constructed of homogeneous rolled earth fill. Medium stone fill will be provided where velocities exceed six feet per second. The arch culverts will be approximately 15 feet x 9 feet at Route 15, and 14 feet x 10 feet at the railroad crossing and South Hamilton Street.
2. Permanent easements are required for interior ponding areas which provide over 500 acre-feet of storage.
3. Several gated culverts will be constructed through the levees to permit passage of internal drainage to the



river during times of low river flow and prohibit river backflow during times of high river flow.

E. Incidental Work Associated with the Project

1. A portion of Hamilton Street (Old Route 17) will be raised to top of levee elevation thus avoiding the need for a closure structure.
2. Various utility lines require relocation.
3. A culvert under Beartown Road requires replacement.

Flood Protection Provided by the Project

Approximately 1,000 acres of flood plain within the community of Gang Mills will be protected. According to the project data, the Tioga River levee will provide protection against recurrence of the 100-year flood after completion of the Tioga-Hammond Reservoirs. The Beartown Creek diversion is designed to safely carry 50-year frequency floodwaters with 3' - 4' of freeboard and will carry 100-year floodwaters with approximately 1½' of freeboard. Since Beartown Creek will no longer flow into Gang Mills Creek, the potential for flooding from Gang Mills Creek will be greatly reduced. Several areas on the landward side of the Tioga River levee require permanent easements to provide 500 acre-feet of temporary storage for internal drainage. These storage areas have a design capacity for a 50-year storm runoff from the area behind the levees.

Frequency-discharge curves obtained from the Corps of Engineers, dated September, 1976, indicate that the 100-year discharge for the Tioga River will be reduced from 75,000 cfs to 57,500 cfs upon completion of both the Tioga-Hammond Reservoir Project and the Cowanesque Reservoir Project. Hence, with both reservoir projects in place the Gang Mills Tioga River levees will afford approximately a 225-year level of protection.

In the initial stages of project design, consideration was given to raising the levees along the Cohocton River. However, the present design discharges and coincidence of flow in the Cohocton and Tioga Rivers do not present a need for that additional work. The Cohocton River levees, as they presently stand, provide more than a 100-year flood protection for the Gang Mills area.

#### Conclusions and Recommendations

1. The Gang Mills Project has been sponsored, designed (with the assistance of consultants), approved and funded by the New York Department of Environmental Conservation.
2. Upon completion of the Tioga-Hammond Reservoirs Project, the Gang Mills Project will provide at least 100-year flood protection for the community of Gang Mills and adjoining areas and thus meets the requirements of the Susquehanna River Basin Commission

Comprehensive Plan for Management and Development  
of the Water Resources of the Susquehanna River Ba-  
sin, Section III, paragraph A-9.

3. Therefore, it is recommended that the project be approved and incorporated in the Susquehanna River Basin Commission's Comprehensive Plan.

Commission Action

On November 29, 1976, the Commission issued a public hearing notice announcing a public hearing to be held on January 13, 1977 for the purpose of gathering data and public reaction to the project. Based on the results of that hearing and the information produced by the staff review of the project, the Commission adopted the Gang Mills, New York Local Flood Protection Project into its Comprehensive Plan for Management and Development of the Water Resources of the Susquehanna River Basin (See Appendix B).

APPENDIX A

PROJECT REFERENCE DOCUMENTS

Erdman, Anthony Associates. Local Flood Protection Feasibility Study Gang Mills, New York. January, 1975.

Erdman, Anthony Associates. Appendices Report, Local Flood Protection Feasibility Study Gang Mills, New York. January, 1975.

Erdman, Anthony Associates. Environmental Impact Statement, Local Flood Protection Feasibility Study Gang Mills, New York. January, 1975.

McFarland-Johnson-Gibbons Engineers, Inc. Flood Risk and Protection Study for Gang Mills, New York. April, 1973.





APPENDIX B  
RESOLUTION NO. 77-1

A RESOLUTION by the Susquehanna River Basin Commission adopting the Gang Mills, New York Local Flood Protection Project by the New York Department of Environmental Conservation, in cooperation with affected local authorities, into the Commission's Comprehensive Plan.

WHEREAS, purposes of the Susquehanna River Basin Compact are to remove causes of principle controversy; to provide for cooperative and coordinated planning; and to provide and encourage the proper management, conservation and the utilization of the basin's water resources; and

WHEREAS, the affected local communities support the project; and

WHEREAS, it has been determined that the project satisfies the requirements of the Commission's Comprehensive Plan guidelines and criteria for level of project protection; and

WHEREAS, the Commission has reviewed the proposed project, and on January 13, 1977 conducted a public hearing thereon to solicit the views of interested parties;

NOW THEREFORE BE IT RESOLVED THAT:

- 1) The project, as proposed by the New York Department of Environmental Conservation, be adopted into the Flood Plain Management and Protection section of the Comprehensive Plan for construction as soon as possible.
- 2) The Executive Director is directed to transmit this Resolution, with a copy of the staff review of the project dated January 13, 1977, to cognizant State and local officials.
- 3) This Resolution is effective immediately.

January 13, 1977  
Date Adopted

  
Chairman



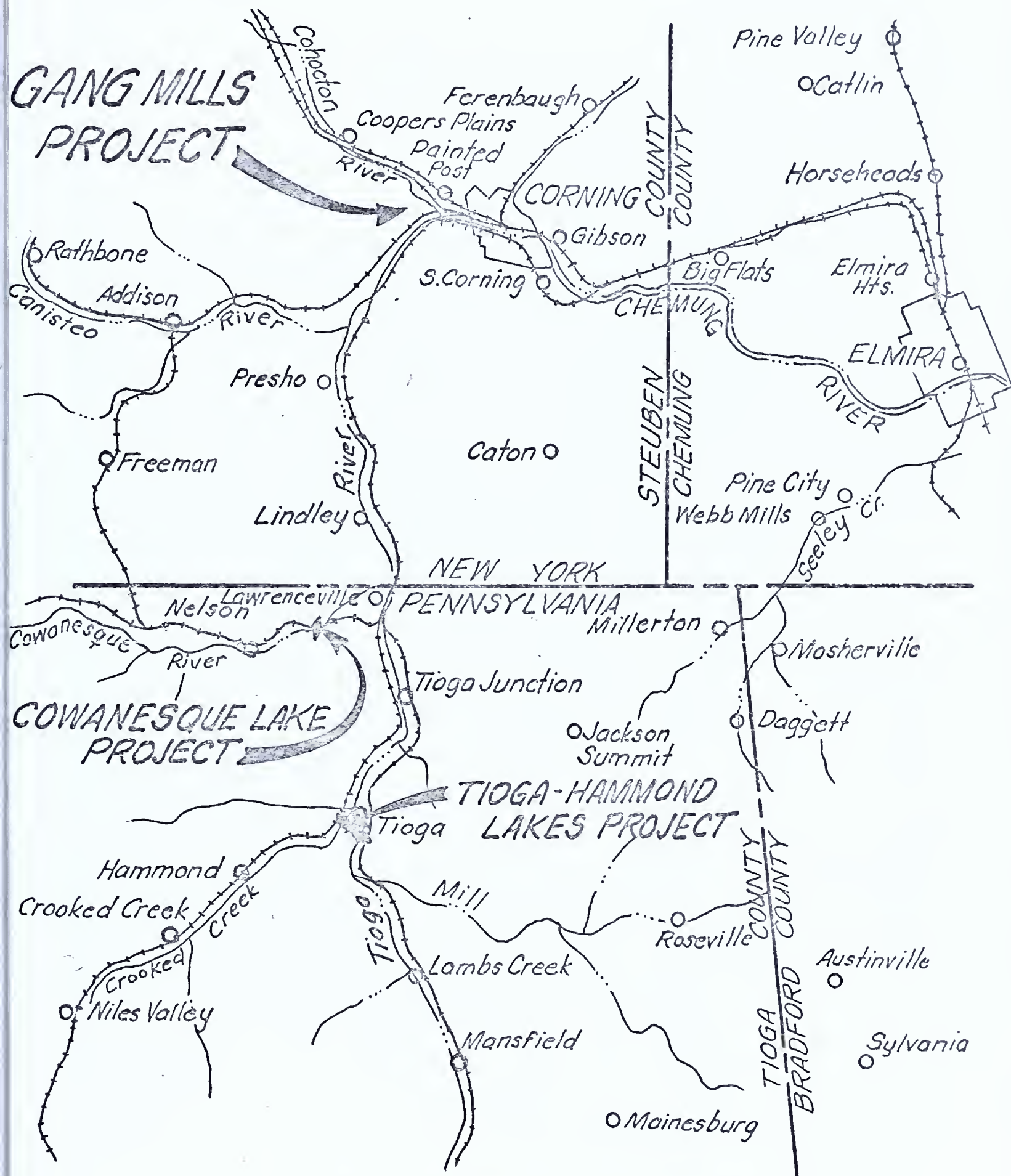


FIGURE 1-LOCATION MAP



